

MP21 Rec'd PCTO 09 AUG 2006

SECURITY SYSTEM FOR STORING AND TRANSPORTING ARTICLES

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TECHNICAL FIELD:

This invention relates to a security system for storing and the transporting of valuable articles, particularly, though not exclusively, for the transporting of currency and other bearer documents.

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BACKGROUND ART:

It is well known to store and transport valuable articles, such as documents, minerals, currency, examination papers and the like, in a tamper evident, sealable plastics bag or primary container. Typically, the primary container is of an appropriate polyolefin that has desired characteristics and that bonds firmly with a strip of suitable adhesive. It is also known to protect a primary container, of any type further, by placing it in a secondary container that, depending on the nature of the articles being secured, has devices that can be activated to stain/damage the articles as well as indicate compromised security, such as visual/audible alarm signals and wireless tracking signals. The staining or damaging medium may be a powder, liquid, solid, gas or heat. Secondary containers are expensive and thus mostly used only to secure primary containers temporarily between collection and deposit points, such as a business and a suitable, appropriately protected/secured/armoured vehicle.

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The terms "stain" and "staining" as used herein refers to damaging, staining, marking, defacing and the like functions to render valuable articles, particularly currency and bearer documents, untradable. While tamper evident plastics primary containers provide acceptable protection against tempering, they are not suited for staining because the polyolefin or plastics is impregnable to known staining media. Secondary containers thus usually rely on a combination of heat to shrink or burn holes in the primary container, thereby exposing the contents to the staining medium which is dispensed inside the secondary container, and staining. Although such

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systems have been used internationally for many years, it is known that their effectiveness is variable. Significantly, the heat source is potentially dangerous at all times - fatalities and fires have been reported - and when activated destroys the expensive secondary container.

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Thus the invention seeks to provide apparatus for ensuring acceptable staining of currency in primary containers within a secondary container that resolves the inadequacies of the known systems mentioned above in a reasonably satisfactory manner.

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DISCLOSURE OF THE INVENTION:

One aspect of the invention provides a method of securing valuable articles wherein the articles are provided within a tamper evident primary container, the primary container is contained within a secondary container, and dispensing means is provided in the secondary container selectively to dispense a staining medium, including the steps of:

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- partitioning the primary container into first and second portions that communicate with each other through at least one path;
- inserting articles to be secured into the first portion and sealing at least that portion; and
- arranging the dispensing means to dispense the staining medium into the second portion when required or activated.

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Preferred features of the method include:

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- forming a plurality of spaced flow paths between the first and second portions;
- inserting a tube into the second portion, and dispensing the staining medium along the tube when required;
- substantially sealing the tube to the primary container, in order to ensure that at least a substantial portion of the staining medium is dispensed into the primary container;

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Another aspect of the invention provides security apparatus including a tamper evident primary container, a secondary container to receive the primary container,

and dispensing means to dispense a staining medium into the secondary container, wherein:

- the primary container is partitioned into first and second portions that communicate with each other through at least one path; and
- 5 -- the dispensing means comprises means to direct the staining medium into the second portion of the primary container.

Preferred features of the security apparatus are:

- the path between the first and second portions is arranged to prevent
10 access to the first portion through the second portion;
- the dispensing means comprises a store of flowable staining medium, means to pressurise the store and means selectively to activate the pressurising means;
- the dispensing means is constituted by a tube that is insertable into the
15 second portion of the primary container;
- the pressure means, store and directing means may be as disclosed in South African Patent Nos. 1999/0122 and 2000/0189, which are to be regarded as being incorporated herein by this reference.

- 20 This invention allows for the release of staining medium into the primary container without affecting the integrity of the material from which the primary container is made, i.e. it does not diminish the tamper evident security features of the primary container. The positioning and arrangement of the path between the first and second portions is designed to frustrate the various methods employed by criminals to
25 penetrate the package, such as tweezers, hooks, wires and the like implements insertable into the first portion to snag and roll currency and documents and withdraw them through the path.

- 30 Further features, variants and/or advantages of the invention will emerge from the following non-limiting description of examples of the invention made with reference to the accompanying schematic drawings.

BRIEF DESCRIPTION OF THE DRAWINGS:

Figure 1 shows a partly broken away, schematic side view of a primary container and dye dispensing means of the invention;

Figure 2 shows a partly sectioned side view of an example of pressure generating means; and

5 Figure 3 shows a front view of a secondary container with a dispensing means of the invention.

DESCRIPTION OF ILLUSTRATED EMBODIMENTS:

In the drawings the same or similar parts have the same reference numbers, certain
10 parts having sub-numbers to identify them as part of a component or as substantially equivalent parts in different embodiments.

Figure 1 shows a primary container 10 to store and transport valuable articles, such as documents, minerals, currency, examination papers and the like, and dispensing
15 means 12 for introducing a suitable staining liquid into the primary container when required.

While the primary container 10 may be any one of and shapes of tamper evident, sealed plastics primary container/bag/envelope, in this example it comprises a
20 rectangular polyolefin envelope 14 with parallel side edges 16, a top edge 18 and a bottom edge 20. An opening 22 is formed near the top edge, the opening being constituted by a flap 24 extending from the top edge over the upper edge 26 of a side of the envelope. The opening is sealable by a strip of adhesive 28. The envelope is partitioned into a valuables portion 30 and a staining portion 32 by a
25 heat welded seam 34 that extends effectively between the top and the bottom edges. The seam has a continuous portion 34.1 adjacent the top edge and an intermittent portion 34.2 formed with openings providing a path between the first and second portions. An opening 36 is formed in the staining portion of the envelope adjacent the top edge. The length of the continuous portion and the width of the
30 holes is designed to prevent documents, such as bank notes, from being rolled up and withdrawn through the openings and slit. Typically the holes are of similar size to one another or range from 2 to 50 mm wide, the size increasing from the opening 36 towards the other end of the envelope.

As variants of the envelope described above, the flap can also be affixed:

- (a) to the upper section and folded down onto the body, or
- (b) to the body and sealed down onto the body and upper section, or
- (c) to the end of the bag and folded to the opposite side of the bag.

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The dispensing means 12 comprises a pressurising means 40 and a tube 42, typically about 12 mm in diameter, extending from the pressurising means. As shown in Figure 2 the pressurising means 40 comprises a strong steel housing 46 containing an igniter 48 and receptacle 50 containing a staining medium. A spigot 10 52 at one end of the housing connects the housing to a socket 54 in the tube 42. When required the pressure means is activated, which explodes with sufficient force to rupture the receptacle, allowing the contents to be released into the staining portion of the envelope and thence into the valuables portion.

15 Figure 3 shows a secondary container 60 comprising a box 62 with a lid 64, pressurising means 40. A mechanical switch 66 and a radio controlled switch 68 are shown for activating the igniter. Other deterrent aids, such as visual and audible alarms, etc. (not shown) may be provided if desired.

20 The apparatus is used in practice to transport currency by a courier, boxman or guard from a business or bank. The currency is loaded into and sealed in the primary container by the business. The primary container is placed in the secondary container and the free end of the tube 42 is inserted into the staining portion 32 at this stage. The secondary container is optionally locked and carried to a
25 security/armoured/secured/ appropriate vehicle. The action within this vehicle, relating to the handling or processing of the primary and secondary containers will be dictated by the internal requirements of the company. For example, the secondary container may be opened and the primary container transferred to a safe, so that the secondary container can be used for the next primary container
30 movement or delivery. At the final destination, such as a bank, the primary containers are unloaded and handed to a counting department. The primary containers are then opened by cutting along a marked designated line 38 using a suitable tool, so that, if needed, the primary container can be examined for evidence

of tampering to determine liability for any shortfall. Any attempt by the courier or another person to extract notes from the sealed envelope should be evident.

5 The continuous portion of the seam 34.1 is thus made sufficiently long to ensure such attempts will stress the slit 36 or the seam 34. The dispensing means can be activated in the event of an attempt to steal the secondary container. Switches sensitive to unauthorised breaking or opening of the secondary container can also be provided. Activation of any of the switches initiates the igniter and ultimately forces staining medium into the portion of the envelope containing currency or other
10 documents, rendering them easily identifiable or untradable.

The system described above will enable secondary containers that have been activated to be cleaned and re-used with a fresh dispensing means - this is in contrast to heat systems where the secondary container becomes unusable once it
15 has been activated.

The invention is not limited to the precise details described above and shown in the drawings. Modifications may be made and other embodiments developed without departing from the spirit of the invention. For example, the primary packages can be
20 manufactured in a variety of materials. The secondary container can be constructed and shaped as desired, eg. a modified briefcase can be used. This invention is not restricted to any particular method of bag manufacturing or type of secondary container or construction of the dispensing means, provided the staining medium can be injected into a desired portion of the primary container without exposing the
25 contents of the primary container to theft.